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MAMMALS OF MT. KATAHDIN, MAINE.

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In the summer of 1902, I spent from July 10 to September 5 in an attempt to determine the mammalian fauna, and in general the faunal zones of Mt. Katahdin in north central Maine. This mountain was chosen because, as far as I know, no mammal work had ever been done in its vicinity, and because of its height and isolated position.

The old idea of Katahdin, printed even in geographies, was that of an extinct volcano, an assumption very excusable in those whose views of the mountain were from a distance, for the "basins" or heads of the old glacial valleys on the eastern side, with their wide encircling walls on the north and south, give the appearance of a great crater blown out on one side. A closer examination reveals the fact that the mountain is in reality a granite ridge of very irregular outline with its major axis lying north and south, flanked by precipitous buttresses, the glacial retaining walls, that project out to the east, west, and north, and drop rapidly away in slopes of high degree on face and point. On the east, north, and west are a number of smaller ridges, timber covered, nestling under the shelter of the greater mountain, and separated from it by valleys and basins. These minor ridges, Hunter Mountain, Traveler Mountain and the

Four Brothers, vary from about 2000 feet to 3000 feet in height. Katahdin itself reaches 5200 feet.

The top of this great ridge is an undulating plateau, shaped in a very general way like an hour-glass. Its lowest point, which is at the waist, is about 4200 feet, whence the surface slopes gradually upward to the north and south. The highest elevation is reached in the south peak, 5200 feet. The two northern peaks, merely somewhat elevated points in the general surface, reach to about 4700 feet. The plateau surface measures probably four miles from north to south, and a mile in width at the north and south expansions. The ground is rock strewn and grassy, with an extensive area of fir scrub—krummholz—near the constriction, and on the northwestern promontory. From the plateau edges, the mountain falls rapidly away. On the east, the north and south spurs, with precipitous rock walls, enclose two great basins—the “north” and the “great”—separated by a long sloping ridge that comes down from the saddle. The more southern of these two basins is itself imperfectly divided into the “south” and the “middle” basins by another and smaller spur. The head of the middle basin is inclined sufficiently to support vegetation, and by a slide at its head affords easy access to the saddle by the old Appalachian Trail. The only other trails to the top are the Abol Trail up the steep south wall of the southwest promontory, and an old unused trail up the crest of a long promontory that leads north and helps enclose a deep glacial basin on the north face of the mountain. The western slopes are somewhat less precipitous, and lead down to a wide flat valley, mountain-locked by Katahdin and its daughter hills on the west. The country surrounding the mountain is comparatively level, almost completely forested, and dotted with lakes, ponds, and sphagnum bogs. The only forest denudation has been by fire.

The floor of the great basin, in which I had one of my camps, slopes from about 3400 feet at its head to 2400 feet at its eastern edge. A small glacial lake, Chimney Pond, occupies part of the south basin. The floor of the north basin is about 3500 feet above sea level, is more extensive than either the south or middle basins, and has elevation enough to render it devoid of high timber. Its floor is in places free from tree growth, and in places along its lower edge, covered by scrub

firs. Its eastern edge is marked by a very small glacial pond in the moraine. The middle basin is covered to its head with a forest of balsams, which climb 100 feet above it, to 3500 feet in suitable localities.

The entire mountain is composed of white and pink granite. The plateau is covered with rough granitic masses that are being disintegrated by frost. This leveling action of the frost has in places evenly carpeted the surface with small granite flakes, varying from the size of the hand to three or four times as large.

The rainfall is so great on the mountain top that its entire surface is moist at all times, and there are at least four perennial seepage springs on the tableland. Two of these are in the fir scrub, which has been cleared for a short distance around them by the gathering of animals to drink in times gone by. The water does not flow out on the surface, but is found subterraneously in little depressions among moss-covered rocks. At one of these springs, at an altitude of 4500 feet, I camped for four nights, while attempting to secure specimens of the native microtine.

Trapping was done at various localities from the base camp, at the union of the Wissataquoick and East Branch Penobscot Rivers, at 450 feet, to the tableland, at 4500 feet.

The following 36 species of mammals are recorded from Mt. Katahdin.

Rangifer caribou (Gmel). Woodland Caribou.

The caribou is an animal of the past in the Katahdin region. Today all that remains is its bones in the porcupine dens. From accounts received, there have been two migrations of caribou from northern Maine, within the memory of inhabitants now living. The last of these occurred about six years ago.

Unfortunately the awakening of public sentiment in regard to the importance of game preservation did not take place while the animals were still abundant, and their absence now can in part at least be attributed to wanton destruction.

Alces americanus (Clinton). Moose.

The recent protective legislation has in the opinion of the natives, resulted in allowing a very considerable increase in the numbers of moose.

Judging by the sign observed, they are comparatively abundant on the base of, and near the mountain. They range up to timberline in favorable localities. Man is practically the moose's sole destructor, and if the killing in defiance of law that takes place to feed the lumber camps were prevented, there would be a still greater increase. It is very difficult to secure evidence against these malefactors. The lumber camps are so isolated that all the persons in them, and in their vicinity, are to a certain extent beneficiaries directly or indirectly, from the fresh meat secured, and are hence *particeps criminis*. The danger of detection in a camp of sixty men, where one animal can be entirely consumed in a short time, is very small, and evidence is not easily obtained.

Odocoileus virginianus borealis (Miller). Northern Virginia Deer.

Deer are really abundant in the Katahdin region. It was not unusual to see as many as five in the course of an afternoon's walk. They sometimes prove a nuisance by destroying unfenced gardens.

One was seen near Chimney Pond, at an altitude of about 3000 feet. They are not common at this altitude however. In spite of the illegal hunting that takes place they appear to be on the increase.

Sciurus hudsonicus loquax (Bangs). Southeastern Red Squirrel.

Red squirrels are abundant throughout the region, extending even to the treeless tableland of the mountain, where I saw one at close range, August 28. Another was seen by one of our cooks in the same locality.

At Chimney Pond camp, altitude 3000 feet, they were abundant.

Only four specimens were secured, though had I foreseen the difficulty of determining their proper designation with respect to the published subspecies of *Sciurus hudsonicus*, I would have taken a large series.

The measurements and colors of my specimens correspond with the description of *S. h. loquax*, described as the upper austral and transition race. But these animals were taken at 3000 feet elevation on the 46th parallel north, and almost within sight of the type locality of *S. h. gymnicus*, the boreal race of the same species, though 2000 feet above it.

A careful examination of the material in the Biological Survey Collection and in the American Museum of Natural History, leaves me totally unable to harmonize the descriptions of the two races with specimens from their respective faunal stations, or to appreciate constant differences as described in individuals from transition and boreal regions.

A comparison of dimensions shows nothing conclusive, and I am led to the belief that the differences on which these two forms are separated are not of sufficient degree or constancy to justify their separation. I propose therefore to call the Red Squirrel from the Katahdin region

S. h. loganx, as it most closely corresponds to this form in color and size, doubting very much whether the consideration of more material from the regions involved will not show that the two forms are in reality not entitled to separate names, and that *S. h. gymnicus* should be retired. I am the more inclined to this belief after reading Mr. Preble's description of typical *Sciurus hudsonicus*.*

Tamias striatus lysteri (Richardson). Northeastern Chipmunk.

Chipmunks were common on the hardwood ridges of the low ground, but I saw none at the higher elevations where the deciduous trees were not so abundant.

One specimen taken at 500 feet altitude is typical *lysteri*.

Arctomys monax (Linn.). Woodchuck.

Fairly common on the lowlands.

Sciuropterus sabrinus macrotis (Mearns). Canadian Flying Squirrel.

A living specimen was kept in the lower camp. These squirrels are common on the hard wood ridges. As usual however, unless trapping for fur, one does not secure them.

Castor canadensis (Kuhl). Beaver.

The beaver is now protected during all seasons in Maine. I heard of a few colonies, on rather poor authority, but the animal no doubt exists in secluded localities.

Mus musculus (Linn.). House Mouse.

Common in dwellings.

Peromyscus canadensis (Miller). Canadian White-footed Mouse.

Nine specimens were taken that correspond perfectly with specimens of typical *P. canadensis* in the Biological Survey Collection. They were secured from the lowest to the highest trapping grounds, one individual being taken under a rock on the tableland, but they are not abundant animals.

*North American Fauna No. 22, p. 45, 1902.

Synaptomys cooperi (Baird). Cooper Lemming Mouse.

Two species of the genus *Synaptomys*, representing both subgenera occur in the Katahdin region.

Of the subgenus *Synaptomys*, one specimen was taken August 3, in a small grassy clearing in the woods at an altitude of about 500 feet, that seems, on comparison with material in the Biological Survey Collection, to be intermediate between *S. cooperi* and *S. fatuus*, but which from its habitat I refer to the former.

Synaptomys sphagnicola (Preble). Preble Lemming Mouse.

Of the subgenus *Mictomys* two examples were taken, August 28, and August 30, respectively, under some balsam scrub by a spring on the table land, at an altitude of 4500 feet.

A thorough and painstaking search was made of the entire top of the mountain, and a line of nearly ninety traps was carefully set, baited, and tended, but the only microtines secured were these two lemmings. Strange to say the entire top of the mountain was covered with old sign, without doubt of this species.

Fiber zibethicus (Linn.). Muskrat.

Exceedingly abundant. While canoeing one day, I paddled up within a few feet of one asleep at the water's edge. While we were watching him he half opened his eyes, apparently looking directly at me, and leaning down lapped the water at his feet, then closed his eyes and relapsed into slumber. If his eyes had seen, his cerebrum had not interpreted, and he did not recognize his dangerous position. A slight noise sent him to the bottom like a flash.

Microtus pennsylvanicus (Ord.). Meadow Mouse.

Contrary to expectation the meadow mice were rather scarce. When I arrived on July 10, the meadow lands available for their homes were many inches under water, and a search of the higher land, revealed but few signs of any kind. A few were found along the rivers, one at 1500 feet, and one at Chimney Pond, at 3000 feet.

Evotomys gapperi (Vigors). Redbacked Mouse.

Fairly common in the higher woods, up to 3500 feet, and probably on the lower levels too, though none were caught there.

Zapus hudsonius (Zimmermann). Meadow Jumping Mouse.

Found in all suitable localities from 500 feet to 3000 feet altitude.

Napæozapus insignis (Miller). Woodland Jumping Mouse.

About as common as, and found in the same meadows with *Zapus*.

Erethizon dorsatus (Linn.). Canada Porcupine.

Very common from the river to the summit of Katahdin. Their dens in the fir scrub and rock heaps were filled with caribou bones, that were deeply chiseled by their incisors.

Lepus americanus virginianus (Harlan). Southern Varying Hare.

The varying hare occurs on the tableland, where I trapped one in an old caribou trail in July. It corresponds with specimens obtained at 1500 feet, and all are comparable with other examples of *L. a. virginianus* in the Biological Survey Collection.

Lynx canadensis (Kerr). Canada Lynx.

Rather a common animal, if the accounts of guides are correct.

Vulpes fulvus (Desmarest). Red Fox.

Quite common throughout the lower parts of the region, where they are often seen on roads.

Lutra canadensis (Schreber). Otter.

Quite common along the lower streams and ponds where fish abound.

Gulo luscus (Linn.). Wolverine.

The trappers all denied having seen or heard of the wolverine in the region, though they were acquainted with the animal by repute.

Mustela pennanti (Erxleben). Fisher.

From the accounts of our cooks the fisher is one of the commonest and most valuable of their fur bearing catch.

Mustela americana (Turton). Eastern Marten.

Common up to timber line.

Lutreola vison (Schreber). Mink.

Mink are common and range up to timber line. On August 26, I caught an adult specimen at an altitude of 3200 feet, 1700 feet above, and five miles beyond, the upper limit of fish-inhabited waters. Heavy rains had filled a usually dry water course in the upper part of the middle basin, and he had probably followed this up.

Putorius cicognani (Bonaparte). Small Brown Weasel.

Very common in the woods in the south basin, and occurring at all altitudes. I caught one on the tableland in a caribou runway leading to a spring, and three at Chimney Pond. All these specimens are peculiar in the deep rich yellow of the under parts, which varies from sulphur to rich saffron, differing thereby from all the specimens that I examined in the Biological Survey and American Museum Collections.

? *Mephitis mephitis* (Schreber). Skunk.

Very common along the streams, where they are said to be increasing rapidly.

Procyon lotor (Linn.). Raccoon.

Common along streams at the lower levels.

Ursus americanus (Pallas). Black Bear.

Still quite common. Several are killed each year.

Condylura cristata (Linn.). Star-nosed Mole.

Two specimens were caught in the grassy clearing of my base camp, at 500 feet, but no signs of them were observed elsewhere.

Blarina brevicauda (Say). Short-tailed Shrew.

The short-tailed shrew is by far the most abundant mammal near Katahdin. In the clearing around the base camp, and in the adjacent

woods they swarm. I caught one in my hands in some *Diapensia* turf just below the edge of the tableland, and trapped one on the tableland at 4500 feet. They seem to take oatmeal bait as readily as flesh.

***Sorex albibarbis* (Cope.).** Water Shrew.

Two specimens of this rather scarce shrew were caught, one at 2400 feet, the other at 3000 feet, but assiduous trapping failed to secure others. A comparison of the two with the type in the National Museum shows them to be perfectly typical.

***Sorex personatus* (I. Geoffroy).** Northern Masked Shrew.

One specimen was secured near a spring in the fir scrub on the tableland at 4500 feet.

Conclusions.

That the flora of the north basin of Katahdin, of the slopes above timber line, and of the tableland is Hudsonian is evident from the occurrence there of such plants as *Saxifraga alpina*, *Phleum alpinum*, *Poa laxa*, *Carex bigelovii*, *Scirpus caespitosus*, *Juncus trifidus*, *Salix uva-ursi*, *Salix herbacea*, *Polygonum viviparum*, *Arenaria groenlandica*, *Cardamine bellidifolia*, *Saxifraga comosa*, *Empetrum nigrum*, *Betula glandulosa*, *Rhododendron lapponicum*, *Chamaecistus procumbens*, *Cassiope hypnoides*, *Phyllodoce caerulea*, *Mairania alpina*, *Vaccinium uliginosum*, *Vaccinium caespitosum*, *Diapensia lapponica*, *Veronica alpina*, *Nabalus nanus*, *Nabalus boottii*, *Solidago alpestris*, *Gnaphalium supinum*, all of which were recorded by the New England Botanical Club party of July, 1900 (Rhodora, Vol. 3, No. 30, January 1901), and many of these are rather Arctic than Hudsonian.

From the species of mammals found it is evident that the entire Katahdin region is covered by the Canadian mammalian fauna, with the possible exception of *Synaptomys sphagnicola* Preble. The first recorded specimen of this species was taken in the Canadian zone near the foot of Mt. Washington, the second and third, the only others, in territory that so far as altitude and temperature are concerned should surely be considered as Hudsonian. From the evidence at hand—the occurrence of this animal with Hudsonian plants, with indications of a colony of some size, at a very recent date, and its absence from surrounding Canadian territory—it seems probable that it is a Hudsonian form, and that it occurred in the lower zone on Mt. Washington, as Mr. Preble has suggested, a wanderer from its native belt.